

# **Chapter 13 Consultant CADD Coordination**

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**Consultant CADD  
Coordination**

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# **CONSULTANT CADD COORDINATION**

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**DETERMINE THE CONSULTANTS DUTIES (PROJECT BY  
PROJECT BASIS)****What is their responsibility?****Consultant Doing Survey**

**Aerial Photogrammetric Mapping** - Consultants will coordinate through Tim LeSiege. They submit their information back to Tim and no information is necessary from the Consultant Coordinator.

**Traditional Surveying** - Consultants will coordinate through the Area Survey supervisors to get specifications. They submit their information back to the Area Survey supervisors and no coordination is necessary.

**Consultant Doing ROW**

**Existing ROW** - Consultants will coordinate through the Real Estate Manager in the Programs. They will require CADD drawings of existing topography and text.

**Proposed ROW** - Consultants will coordinate through the Real Estate Manager in the Programs. If they are doing the proposed ROW, chances are they are doing existing also. They will require CADD drawings of existing topography, text, existing ROW (if necessary), alignment, design (highway.dgn or bridge.dgn) and cross sections.

**Consultant Doing Design**

**Bridge Projects** - Consultants will coordinate through the Consultant Coordinators in the Program. They will require CADD drawings (both 2D and 3D) of existing topography, text, contours, points, triangles and existing ROW. The agreement may or may not require the consultants to “clean-up” topo and text drawings. For all new projects, consultants will follow the current General Contract Agreement.

**Highway Projects** - Consultants will coordinate through the Consultant Coordinators in the Program. They will require CADD drawings (both 2D and 3D) of existing topography, text, contours, points, triangles and existing ROW. The agreement may or may not require the consultants to “clean-up” topo and text drawings. For all new projects, consultants will follow the current General Contract Agreement.

**What do they need from us?****Link to Web page**

All of our CADD customization is available online for consultants to download. This includes seed files, linestyle resource files, cell libraries and font resources. The web address is as follows: [www.maine.gov/mdot/cadd-support/cadd-home.php](http://www.maine.gov/mdot/cadd-support/cadd-home.php). We highly encourage them to use our customization. For more information, have them call ESSG's CADD support personnel.

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**Seed Files**

We have quite a few seed files in our configuration. Instruct consultants to use our standard seed file called “usMDOT\_SEED.dgn” for all U.S. Customary projects (MDOT\_SEED for metric projects). These can be found on the CADD download page at the following address: [www.maine.gov/mdot/cadd-support/microstation/downloads.php](http://www.maine.gov/mdot/cadd-support/microstation/downloads.php) .

**Our Standard file Structure/File Names**

Consultants should follow our standard naming convention which is laid out on our webpage. The address is [www.maine.gov/mdot/cadd-support/microstation/std\\_filename.php](http://www.maine.gov/mdot/cadd-support/microstation/std_filename.php) .

## SENDING SURVEY FILES TO A CONSULTANT

### MDOT Survey Data

Most of the consultants will require our survey data with the exception of Survey Consultants. When a Survey Editor is done editing MX data and creating MicroStation design files, they zip all the pertinent files into a single Zip file and place them in a consultant folder under the survey folder on the y:drive (i.e. y:\pin\8467\00\Survey\consultant\). The zip file will be named PINTOWN.zip (Figure 13-1). See breakdown below for explanation of the files included in the zip.

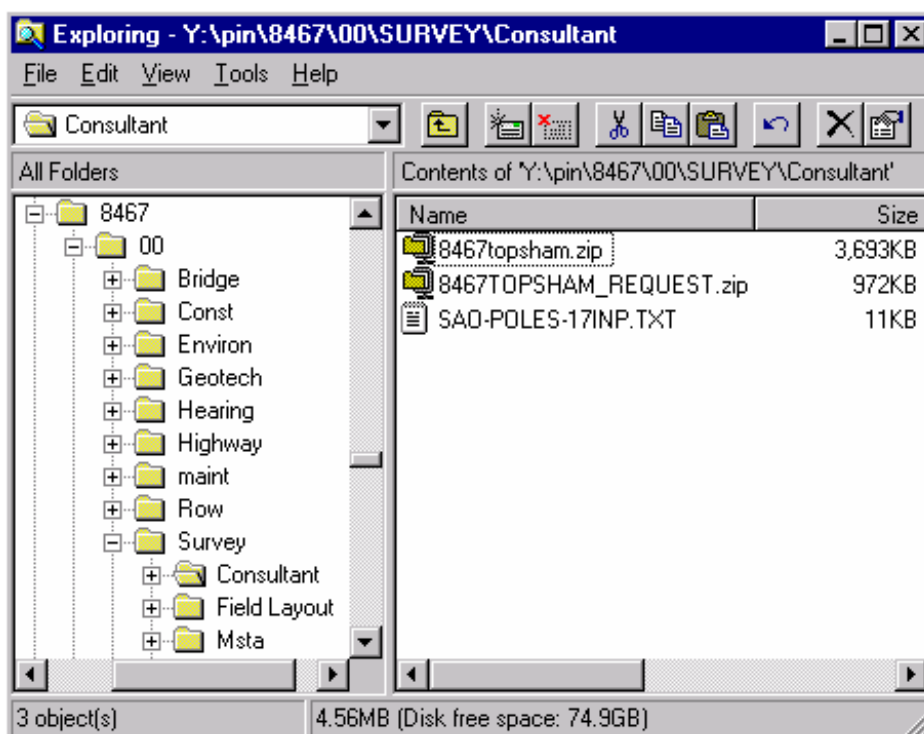


Figure 13-1: Example of zipped Survey Files ready to be sent to a consultant

### Breakdown of files sent to a consultant

#### MX files:

**Traverse.inp** file(s) contains the adjusted Traverse & generates the Traverse Model.

**Ground01.inp** file(s) contains the topographic features from the field survey

**Ground01.out** file(s) contains the resulting X, Y, Z coordinates & associated point number above data.

**Ground01.inc** file(s) generates the topographic features with associated text.

**Ground01.rep** file(s) shows the labels X, Y, Z coordinates with associated text.

**Contours.inp** generates the Triangles & Contour Models.

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**Points01.str & Points01.txt** file(s) generates the Point Numbers as surveyed from the field.

🎵 MX users may need to process multiple sets of numbered files (i.e. ground01.inp through ground10.inp) as opposed to running the highest numbered file.

### MicroStation files:

**Topo.dgn** is the Survey (cleaned-up and flattened). This file, if cleaned-up, is located in the topo folder of the PIN number.

**Text.dgn** is the text associated with Survey data (cleaned-up and flattened). This file, if cleaned-up, is located in the topo folder of the PIN number.

**Points.dgn** are the field Survey point numbers.

**Contours.dgn** is the 3D contours drawing. This file resides in the Survey\MSTA folder. There is a contours drawing in the topo folder also, but it has been flattened.

**3Dtopo090902.dgn** is the 3D MicroStation design file (.dgn) of the Survey.

**origtext.dgn** is the 3D MicroStation design file (.dgn) of the text associated with Survey data.

**Triangles.dgn** is the 3D triangulation file (.dgn) for the project.

**Mapping.dgn** is the 3D MicroStation design file (.dgn) of the merged Mapping with Survey and Traverse (only on Photogrammetric Mapping projects).

**MappingText.dgn** is the 3D MicroStation design file (.dgn) of the merged text for Mapping and Survey (only on Photogrammetric Mapping projects).

**MappingContours.dgn** is the 3D MicroStation design file (.dgn) of the Mapping Contours (only on Photogrammetric Mapping projects).

**MappingTriangles.dgn** is the 3D MicroStation design file (.dgn) of the Mapping Triangles (only on Photogrammetric Mapping projects).

## Step One: Posting files to Outgoing FTP site

Click your **Start** button and go to **Programs>WS\_FTP LE>WS\_FTP LE** or double click the icon (Figure 13-2) on your desktop.



*Figure 13-2: FTP Icon*

When the program opens you should see a **Session Properties** dialog. Press **OK** (Figure 13-3) to log into the FTP site.

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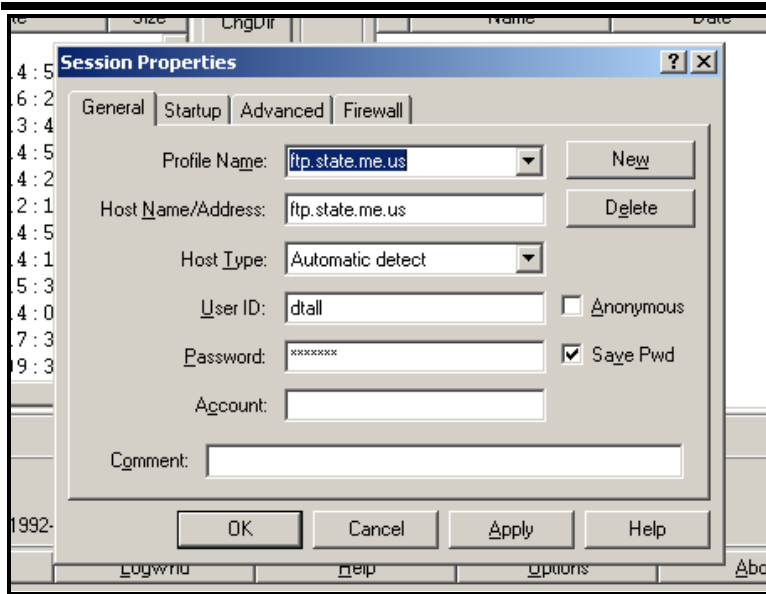


Figure 13-3: Session Properties

## Step Two: Browse and Push Files to FTP

On the right side (**Remote Site**), you should see the folder list, (incoming, outgoing, etc.) and on the left (**Local System**), see a list of available drives. These are the drives you currently have mapped to your computer.

We have a folder for all **outgoing** files and a folder for all **incoming** files. Open the appropriate folder for the action you are taking.

In the **Local System** window, browse to the y:drive and folder where the file exists that requires transferring (i.e. y:\pin\8467\00\survey\consultant\). When the contents of the folder are displayed in the left section of the dialog area, highlight the desired file and click on the directional arrow (Figure 13-4) between the two view areas.

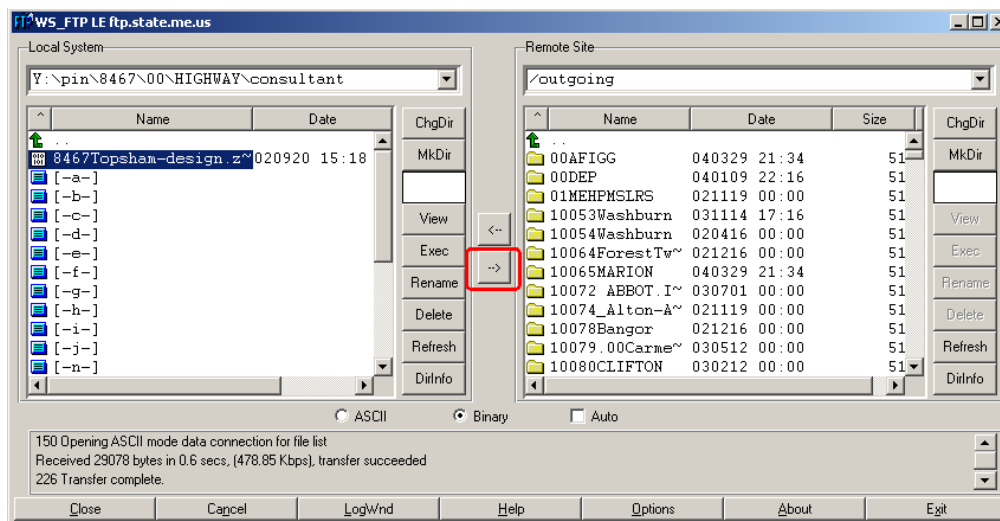


Figure 13-4: WS\_FTP LE ftp.state.me.us

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**Step Three: Send Email with Link to File**

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**Introduction**

We can send a hyperlink in an email document that points directly to the file you posted, starting the download on their end automatically.

Or, we can also notify clients when a file is posted and provide them with the HOST (<ftp.state.me.us>) with the user (anonymous) and the password (anonymous). Then, by using a normal Internet browser or some type of FTP software, they can connect to our site and find the file and download it manually.

**Part One: Type address to FTP in email**

Type the complete address path and file name, within the body of an email message area and the recipient can click the link and start downloading to a specified location on their computer.

Here is an example: `ftp.state.me.us/outgoing/8467topsham.zip`.

- ♪ Use forward slashes between folders and never use spaces in the file names. Use lowercase for the ftp address and outgoing folder. Match the case of the file name you created.

**Part Two: Add Subject Line and Send**

Add the filename in the Subject line of your email. Provide a brief description of files attached. Click **Send**.



## SENDING OTHER FILES TO A CONSULTANT

### Step One: Create Consultant “Out” Folder

Open **Windows Explorer** and browse to your *Workgroup's* folder (i.e. Y:\pin\8467\00\HIGHWAY). **Right Click** and select **New>Folder**. Name this folder **Consultant**. Open this folder and **Right Click** and select **New>Folder**. Name this folder **OUT**. Open this folder. An example is shown in Figure 13-5.

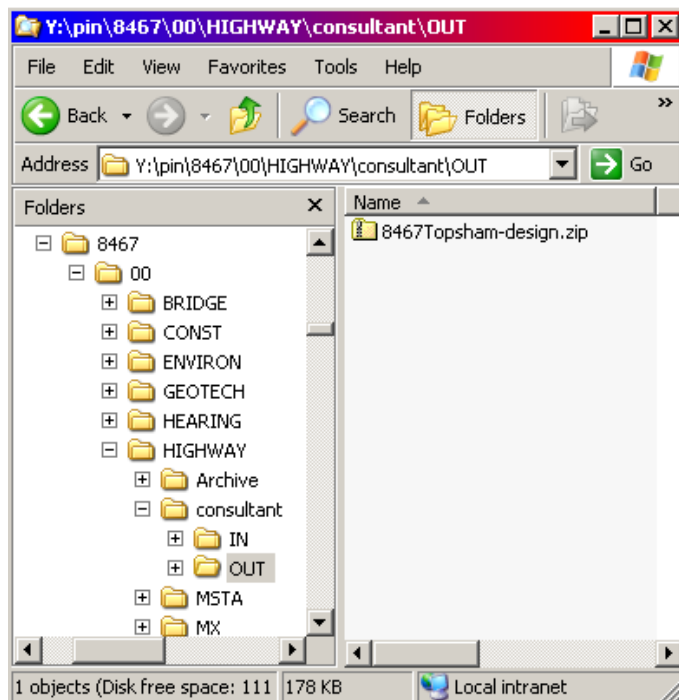


Figure 13-5: An example of a consultant folder structure

### Step Two: Create a Zip file

Creating a Zip file is as easy as Right clicking and selecting **New>Compressed (zipped) Folder** in the folder where you want the zip file to exist (i.e. Y:\pin\8467\00\HIGHWAY\consultant\OUT). This will create a Compressed (zipped) file called “New Compressed (zipped) Folder.zip”. Select the file and pick **File>Rename**. Supply a new name by typing the name and hitting enter. Be sure to add the “.zip” extension to the file name.

**❗ Use good judgment when naming files. Rather than dumping random files without unique names to the FTP site, always use naming that will make it easy to identify your files from someone else’s (i.e. 8467topsham.zip or 8467rwplan.zip).**

Select one or more files in Windows Explorer and drag and drop them onto the Zip file, or double click the zip file to open it, then drag and drop files from Windows Explorer into the Zip folder.

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**Step Three: Post to Outgoing FTP site**

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**General Rules of Thumb!**

- 1) Send a zip (compressed) file when sending more than one file, or files large in size.
- 2) Use good judgment when naming zip files. Do not dump random files (i.e. topo.dgn, Rwplan.dgn, text.dgn, highway.dgn, etc.) to the FTP site, always try and use unique naming that will make it easy to identify your zip file's from someone else's. (i.e. 8467topsham.zip)
- 3) Do not create a folder.
- 4) Clean up you own mess! BIS does house cleaning only when the server is too full to function. By then it's a crisis. Delete incoming files after you have downloaded them.

**Open FTP Site**

Follow steps previously documented in the **Sending Survey Files to a Consultant** section.

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## **RECEIVING PROJECT FILES FROM A CONSULTANT**

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### **File Format**

Older project that were started before the current GCA are grand fathered and we will accept .dwg or .dxf files. MicroStation can open/attach these files in their native format. If the consultant uses AutoCAD, request that they send MODEL SPACE drawings in our State Plane Coordinate System.

Newer contracts that are governed by the current GCA require that consultants send .dgn (MicroStation) files.

### **Drawings to Receive**

The Department separates drawings by discipline and use referencing to combine all drawings necessary to produce a plan set. As previously stated in this document, consultant duties vary from project to project. Consultants doing ROW work should send back only the existing and/or proposed ROW files. If a consultant is doing proposed design for a project, they should be sending back an **alignments.dgn** and a **highway.dgn** or **bridge.dgn**. As the project nears completion, they should send all files relative to the project. They may or may not use our naming convention. We encourage them to follow our standard naming convention which is laid out on our website ( [www.maine.gov/mdot/cadd-support/microstation/std\\_filename.php](http://www.maine.gov/mdot/cadd-support/microstation/std_filename.php) ). If they do not, it may be necessary that they include a text document that describes their filenames. It's up to you to rename these files if necessary and place them where they belong in the project directory.

### **What don't we want back?**

Because we usually supply the consultant with Survey data, we do not want it back unless they have made significant changes to the topo and text files due to field review or inspection. If the consultant is required to clean up the topography, we would want the cleaned up version back from them and placed on our network. If they have added topography, have them send only the things that they have added. These items can be merged into our topo.dgn. Someone in-house may have cleaned up our copy of the topo.dgn so we may not want to replace it.

### **Step One: Create a Consultant Directory**

Now we need to create a folder in the projects PIN structure for the consultants ".zip" file. This will be a record of what was received from them and the date of submittal.

Open **Windows Explorer** and browse to your *Workgroup's* folder (i.e. Y:\pin\8467\00\HIGHWAY). **Right Click** and select **New>Folder**. Name this folder **Consultant**. Open this folder and **Right Click** and select **New>Folder**. Name this folder **IN**. Open this folder. An example is shown in Figure 13-6.

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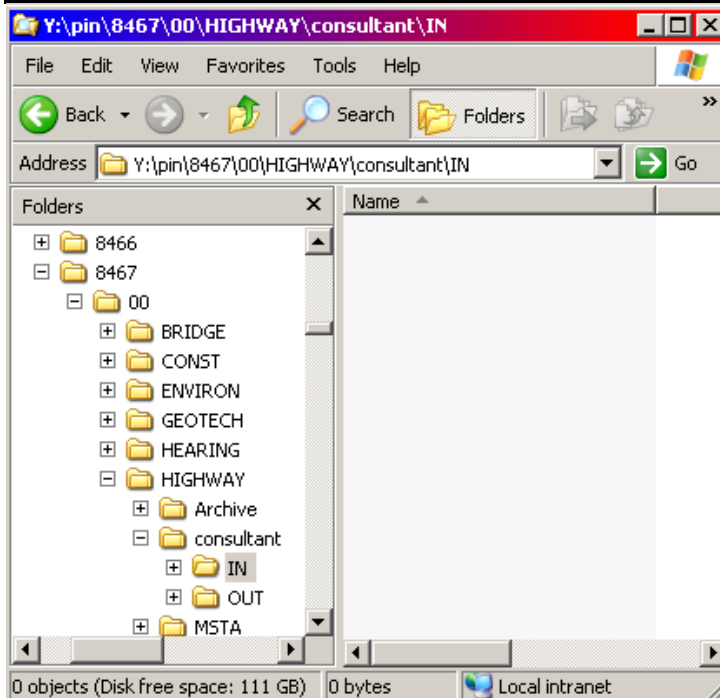


Figure 13-6: Consultant/IN folder in your Workgroup's folder

## Step Two: Download Files From Incoming FTP Site

### Part One: Open FTP software

Click your **Start** button and go to **Programs>WS\_FTP LE>WS\_FTP LE** or double click the icon (Figure 13-7) on your desktop.



Figure 13-7: FTP Icon

When the program opens you should see a **Session Properties** dialog. Press **OK** (Figure 13-8) to log into the FTP site.

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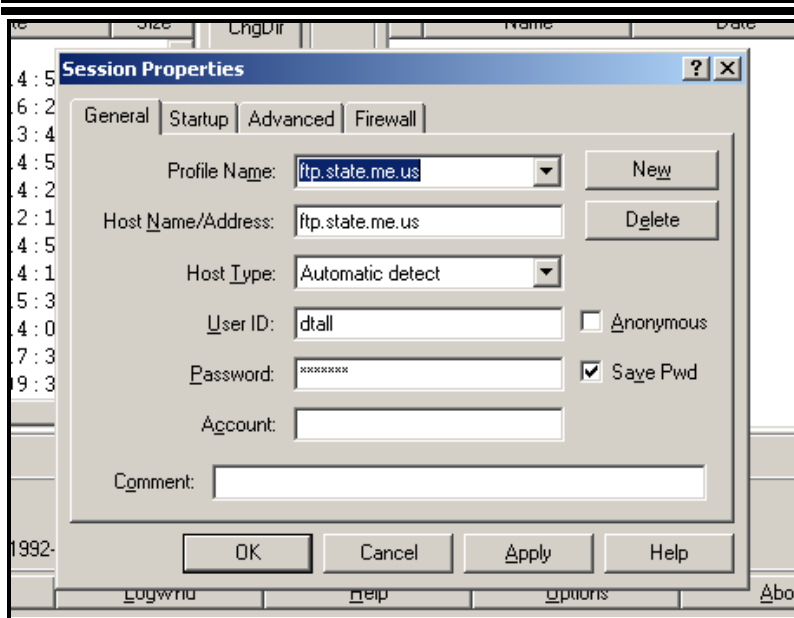


Figure 13-8: Session Properties

### Part Two: Browse and Pull Files From FTP Site

In the **Local System** window, browse to the y:drive and to the folder you just created (i.e. y:\pin\8467\00\Highway\consultant\IN).

On the right side (**Remote Site**), you should see the folder list, (incoming, outgoing, etc.). Open the **incoming** folder.

Locate the file that the consultant posted for you in the incoming folder and click on the directional arrow (Figure 13-9) between the two view areas. You should start to see the progress of the download. If you feel confident that the file was copied to the **Consultant\IN** folder, delete the file from the incoming folder. Close the FTP session.

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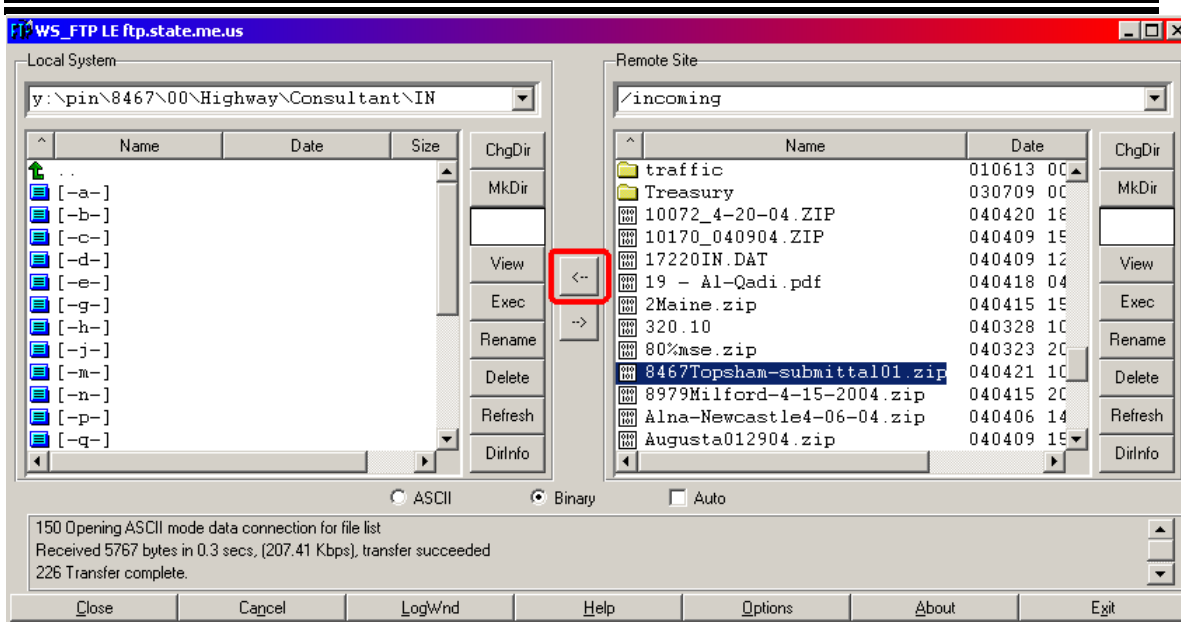


Figure 13-9: Incoming folder using WS\_FTP LE [ftp.state.me.us](http://ftp.state.me.us)

## Step Three: Extract Files from the Zip folder

### Part One: Browse to your PIN's Consultant\IN Folder

Navigate to the **Consultant\IN** folder that you created in your project's PIN number. Locate the file that you just copied from the FTP site. Double click this file to display its contents (Figure 13-10).

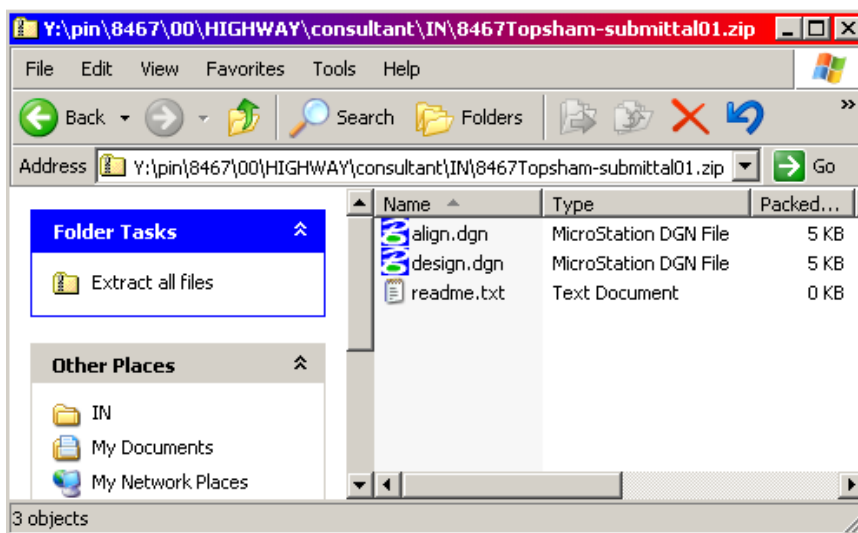


Figure 13-10: Contents of the zipped folder

### Part Two: Extract Files to Consultant directory

From the Explorer menu, select **File>Extract All...** The *Extraction Wizard* will open. Click **Next**. The next dialog window allows you to either browse to where you want to

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place the extracted files or simply remove a portion of the path in the “Files will be extracted to this directory” window. Trim off the end of the path until you reach the **Consultant** folder (i.e. y:\pin\8467\00\highway\consultant). Click the **Next** button (Figure 13-11).

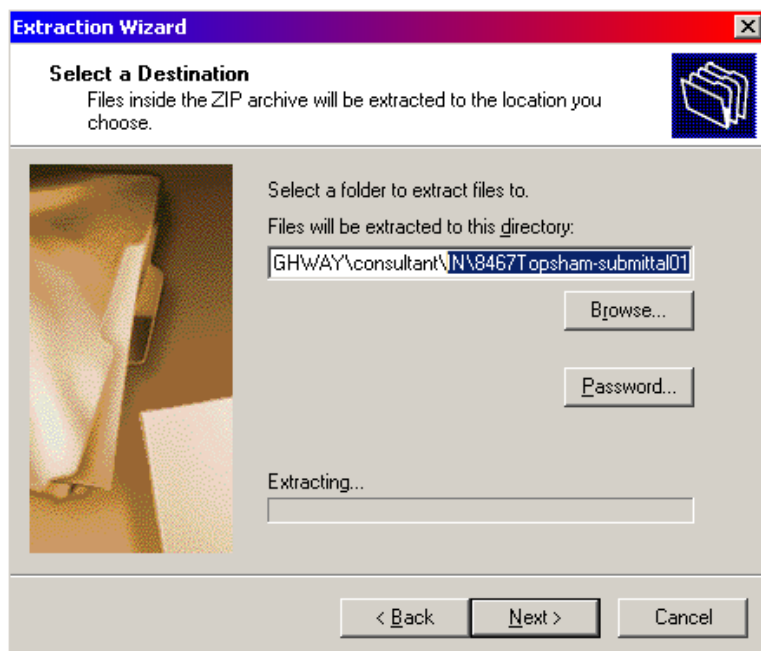


Figure 13-11: Remove part of the path to the desired directory in the Extraction Wizard

♪ We want to extract to the consultant directory temporarily.

### Step Four: Move Files to Bridge\MSTA, Highway\MSTA or ROW\MSTA

MicroStation requires that files be in a certain place for them to be viewable to everyone as a reference file. Now you will have to **move** them into the correct location. Highlight the design files in the consultant folder. From the Main Menu, select **Edit>Cut**. On the left side of the window, click on the MSTa folder next to the consultant folder to display its contents on the right. Select **Edit>Paste** to place the files into the MSTa folder.

♪ If you receive a Right of Way file, you may not have permissions to move it to the correct folder. Have your ROW technician move this file into the ROW\MSTA folder.

❗ *It is important that all MicroStation files relative to the project exist in a MSTa folder. This is where MicroStation will look for files to reference.*

### Step Five: Rename Consultant files in MSTa Folder

#### Standard Naming Convention

We have standard names for files. We ask that consultants follow our naming convention, but chances are, some won't. A complete lists of acceptable file names are listed on our web site. Here is the address: [www.maine.gov/mdot/cadd-](http://www.maine.gov/mdot/cadd-)

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support/microstation/std filename root.php. It is up to the Consultant Coordinator to rename the files if necessary. Common file names are listed below.

**Alignments.dgn** - This is the proposed alignment file. It contains all Main Line and Side Road alignments including Curve Data and Bearings.

**Highway.dgn** - This is the proposed design file for a Highway project.

**Bridge.dgn** - This is the proposed design file for a Bridge project.

**Rwplan.dgn** - This is the file that will contain both existing and proposed ROW.

### Renaming the Files

To rename a file, select the file and pick **File>Rename** from Windows Explorer's Main Menu. Type the new file name and be sure to include the file extension. Hit enter to complete this process.

### Step Six: Compare with our Files (Optional)

This is an optional step that might save a lot of headaches for someone in the future. If the drawing doesn't follow our standards, it will be apparent immediately when a person views it with our standard drawing files.

### Open MicroStation

Click the MicroStation icon on your desktop. Select your project number from the project pull down.

### Select a File to Open

Open a file that should be referencing the topography files and the proposed design files (i.e. hdplan.dgn or bdplan.dgn). Fit view. The files should line up correctly.

### If all looks good...

If the files line up good, skip to the next step. If it doesn't, contact ESSG's CADD support for additional troubleshooting.

### Step Seven: Send Message to Team Members

After the files have been named correctly and placed in the correct directory, it would be a good idea to send a message to team members notifying them that the files are ready to be used.



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## **RECEIVING UPDATES FROM A CONSULTANT**

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### **Communication**

Communication is the key for receiving updates from a consultant. The update process is when a file can be unintentionally overwritten.

### **Is this a Complete Replacement?**

Ask the consultant if the file is a replacement of a previous submittal, or if it's an addition to an existing file or simply a file to be added to the project files. It is better to receive a complete replacement unless it took a lot of manual editing on our end to get their file to meet our standards. In this case, we can reference and merge only the changes into the previous submittal.

### **Readme file**

A readme.txt file is a good way for a consultant to describe what their intentions are. Encourage your consultant to include this in zip files that they submit.

### **Step One: Create an OLD folder**

In order to keep a running record of what was submitted by a consultant, create an OLD folder under the workgroups MSTA folder (i.e. \Highway\MSTA\OLD).

### **Step Two: Move Older file(s) into the OLD folder**

If a file is going to be completely replaced by a new one, move the older file into the old folder. In Windows Explorer, find the file to be replaced. Select it and pick **Edit>Cut** from the Main Menu. Click on the OLD folder on the left side of the Explorer window displaying the contents on the right. Select **Edit>Paste** from the Main Menu to paste it into the "old" folder.

- ♪ If you have placed files in the folder already, and it has the same name of the file you are posting, Windows may ask you if you to overwrite it. Say "OK"(Yes) to overwrite it. Keep only the latest "old" file.

### **Step Three: Copy File From FTP to Consultant folder**

Use the same procedures as previously outlined for copying files from the incoming FTP site. This was outlined in the "Receiving Project Files from a Consultant" portion of this manual. If the consultant used the same file name as a previous zip, create an old folder under the Consultant\IN folder and move the older zip into the "old" folder. If the zip file name is different from any previous, leave all zip files in the consultant\IN folder.

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**Step Four: Extract files and move to MSTA Folder and  
Rename Accordingly**

Use the Extracting procedures as outlined previously in this document (“Receiving Project Files from a Consultant”). Rename the file if necessary to follow our standard file naming.

**Step Five: Compare with our Files (Optional)**

This is an optional step that might save a lot of headaches for someone in the future. If the drawing doesn’t follow our standards, it will be apparent immediately when a person views it with our standard drawing files.

**Open MicroStation**

Click the MicroStation icon on your desktop. Select your project number from the project pull down.

**Select a File to Open**

Open a file (i.e. hdplan.dgn or bdplan.dgn) that should be referencing the topography files and the proposed design files (alignments, highway, bridge rwplan). Fit view. The files should line up correctly.

**If all looks good...**

If the files line up good, skip to the next step. If it doesn’t, contact ESSG’s CADD support for additional troubleshooting.

**Step Six: Send Message to Team Members**

Many team members may be using the files received from the consultant. It is a good idea that you send a message to them stating a revision has been made. This will keep the project flowing smoothly.

# CREATING A .DWG

## PROCESS OF SAVING A SINGLE FILE AS A DWG

### Introduction

Occasionally a consultant may require an AutoCAD file. Find out what version of AutoCAD they are using. MicroStation can create the drawing using our file standards. It uses the active file's Global Origin, Level Structure, Units and Color table.

### Step One: Open file to be Converted

Open MicroStation, pick your project from the project pull down and open the file you wish to convert.

### Step Two: Select File Save As...

Choose **File>Save As...** from the Main Menu. A dialog will open (Figure 13-12) giving you the opportunity to change the file type and directory path. From the “**Select Format to Save**” pull down, select **AutoCAD drawing file (\*.dwg)**. Browse to your *Workgroup's Consultant\OUT* directory (i.e. Y:\pin\8467\00\Highway\Consultant\OUT).

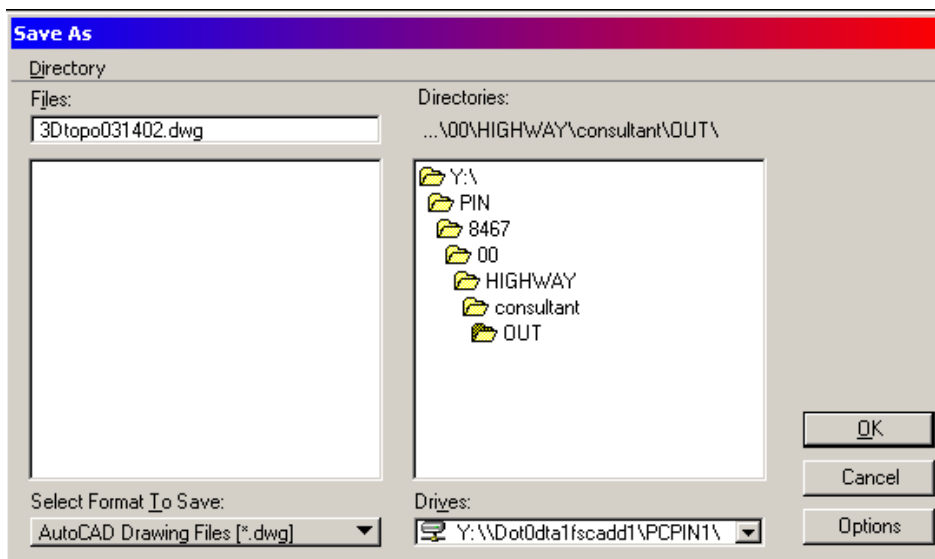


Figure 13-12: Save As dialog (\*.dwg File Format) pointing to the Workgroups Consultant/OUT directory

- ♪ Put the file(s) in the consultant\OUT directory. This is where you will zip up the file(s) prior to placing them onto the FTP site.

### Step Three: Adjust Options

Select the *Options* button in the **Save As...** dialog. In the **General** tab, pick the version of AutoCAD the consultant is using. *Units* should be set to **Master Units** by default. In the **DWG Seed File** area, hit the magnifying glass to browse to MDOT's standard seed file folder (i.e. c:\msv8conf\standards\seed\DWG seed\). Depending on the project type, choose

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either the usMDOT\_SEED.dwg or the MDOT\_SEED.dwg (metric projects). Adjust the rest of the settings as shown in Figure 13-13.

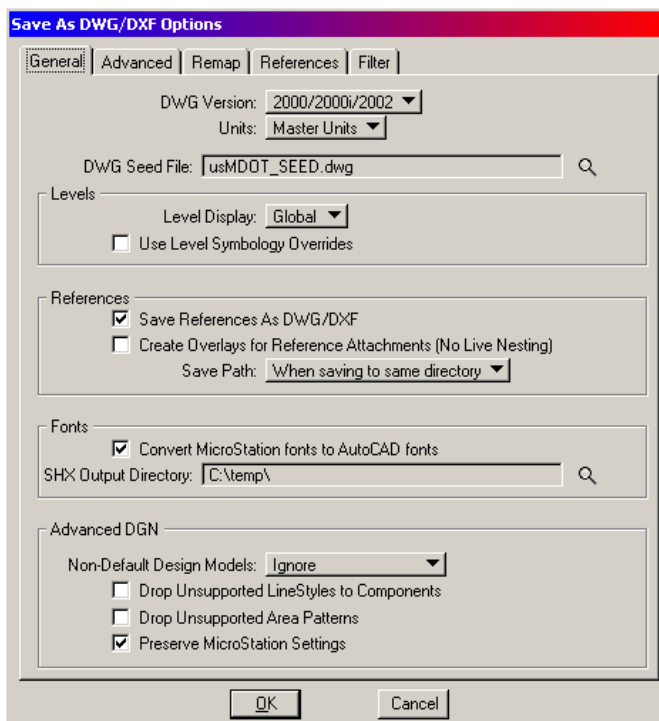


Figure 13-13: Save As DGN General Settings

Select the **Advanced** tab and adjust your options to those seen in Figure 13-14.

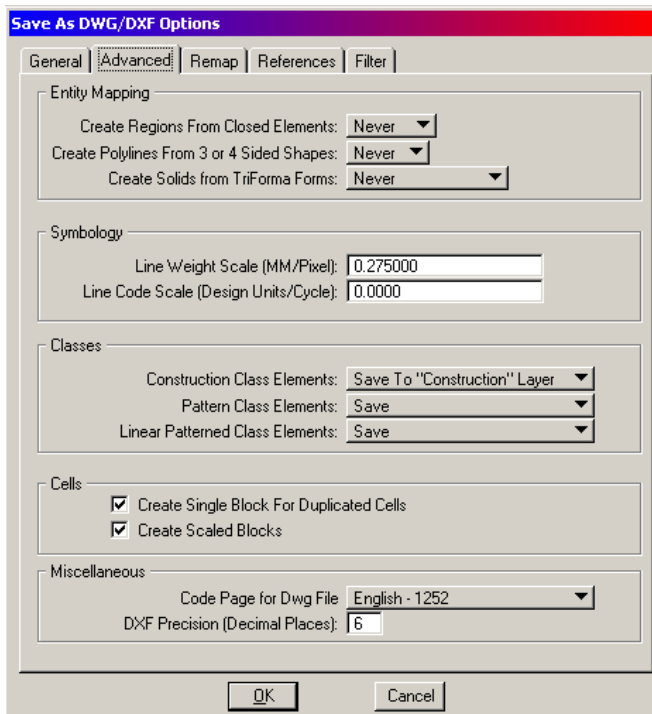


Figure 13-14: Save As Advanced Tab options

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The **Remap** tab is fine by default. Click on the **References** tab and adjust your options to those seen in Figure 13-15.

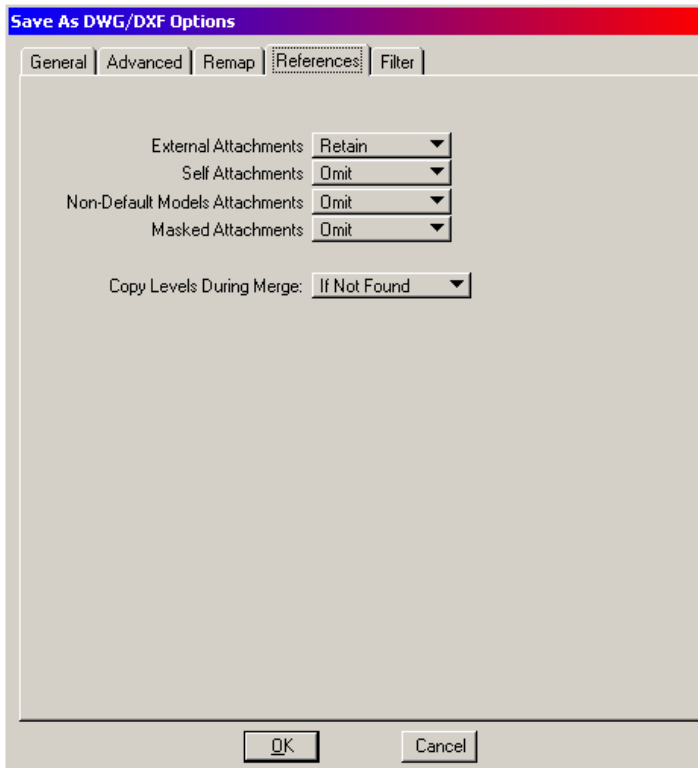


Figure 13-15: Save As Reference Tab options

Select the **Filter** tab and adjust your options to those seen in Figure 13-16.

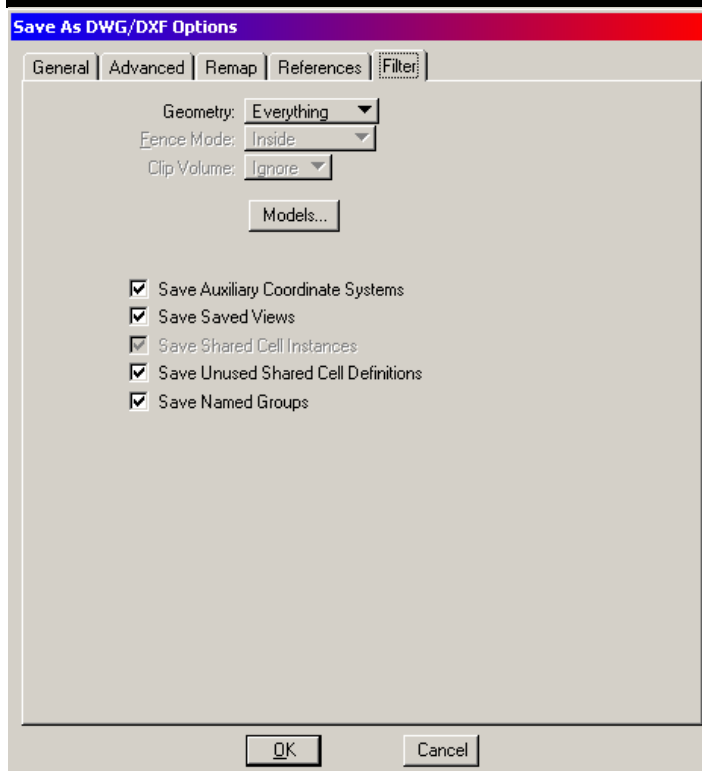
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Figure 13-16: Save As Filter Tab options

Click **OK** and the file will be created.

## Step Four: Zip and FTP the File

MicroStation will also create resource file that AutoCAD can use to display the same Fonts and Linetypes in their drawing. Open Windows Explorer and browse to your C:\temp folder and copy all of the .shx files to your *Workgroup's* Consultant\OUT folder.

Browse to your *Workgroup's* consultant\OUT folder and Right Click and select **New>Compressed (zipped) Folder**. Rename it appropriately copy your .dwg and .shx files into it. Post it to the FTP site. Now that you have a record of what you sent in the Zip file, delete the single .dwg file and .shx files.

## **BATCH PROCESSING MULTIPLE FILES TO DWG**

### Introduction

If you need to create many DWG files it is quicker to setup a Batch job to do this. Sometimes you may need to convert and send the survey files as .dwg. You can add files from different directories for conversion also.

### Step One: Open a File

Open MicroStation, pick your project from the project pull down and open any file, preferable one that you do not need to convert.

### Step Two: Start Batch Utility

From the *Main Menu*, select **Utilities>Batch Converter...** . The *Batch Convert* dialog will open. Select **DWG** from the *Default Output Format* pull down (Figure 13-17).

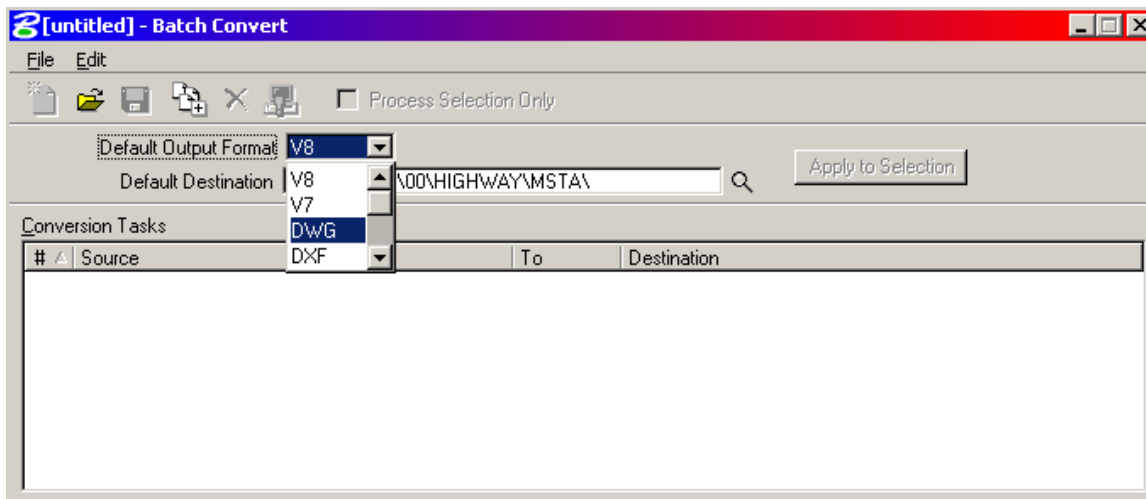


Figure 13-17: Changing the Default Output Format to DWG

### Step Two: Adjust Options

Adjust the DWG output preferences by selecting **Edit>DWG Save Options**. These options should be set the same as you would for a single file conversion. See figures Figure 13-13, Figure 13-14, Figure 13-15 and Figure 13-16.

### Step Three: Adjust Destination

In the *Default Destination* field, click the magnifying glass and browse to your *Workgroup's* consultant\OUT folder.

### Step Four: Add Files to Convert

Select **Edit>Add Files** from the *Batch Convert* dialog. A new dialog will open. Browse to the directory that contains the files you want to convert. Select them and click the **ADD**



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button (Figure 13-18). Browse to other directories and add more files if necessary. Click the **Done** button when you're finished adding files.

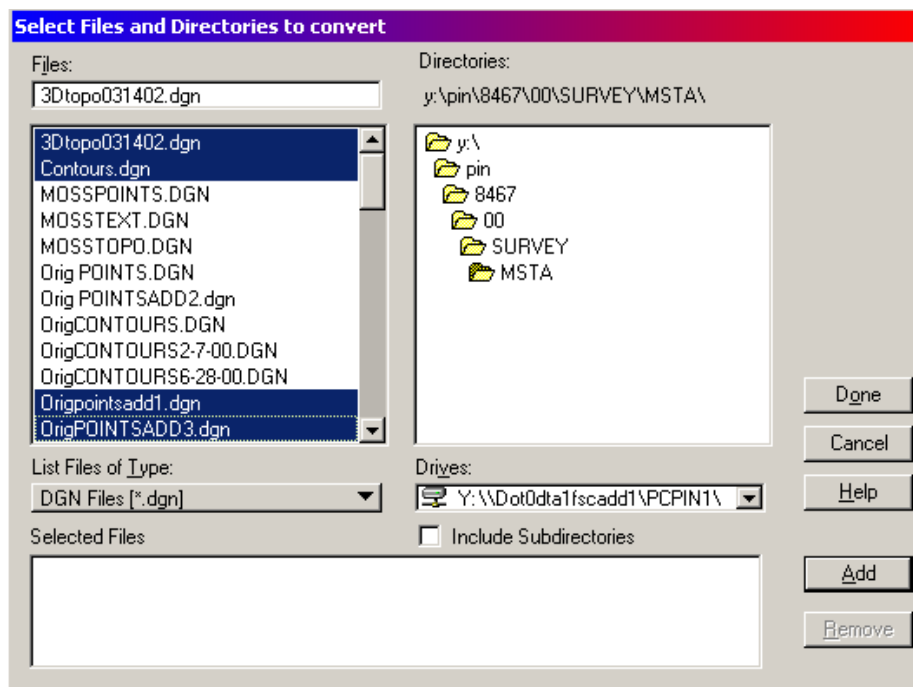


Figure 13-18: Select Files and Directories to Convert dialog

## Step Five: Process Files

Select **File>Process...** from the *Batch Convert* menu. The *Files to Convert* dialog will open (Figure 13-19). Click the **Convert** button and it will show you the progress as it process the files.

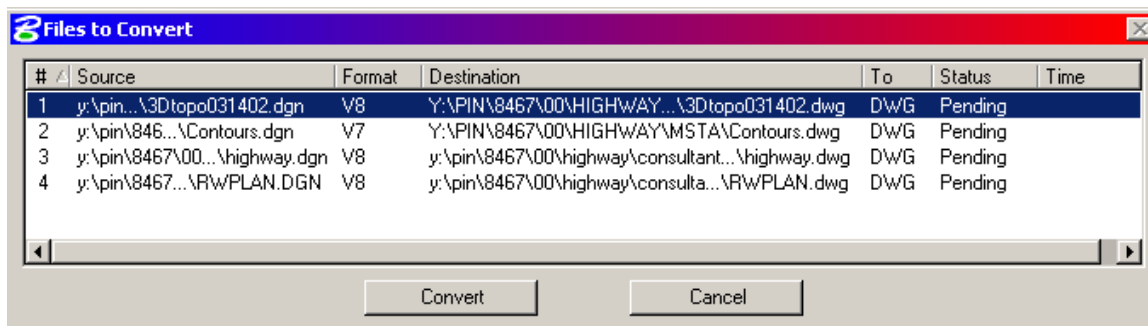


Figure 13-19: Files prepared to convert

- ❶ Occasionally you will receive a message (Figure 13-20) when a file doesn't get converted. Make note of which files fail during the conversion process. This message is very common. It may be because you are in a file that is referencing a file you are converting. Click OK.

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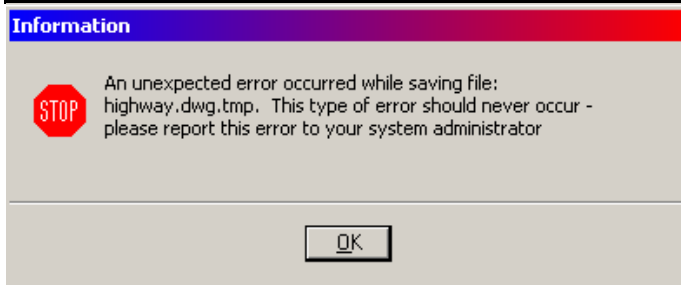


Figure 13-20: Unexpected Error message – Make note of file name

When the files have all been processed, the dialog (Figure 13-21) will display which files that were converted and which ones may have failed. Click DONE.

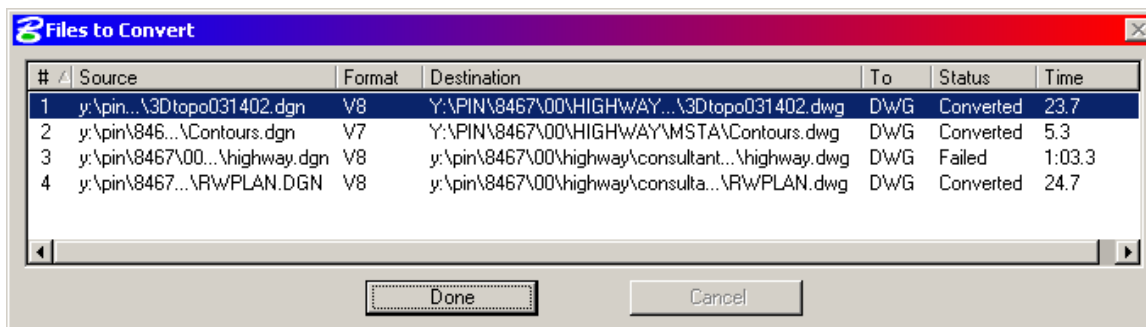


Figure 13-21: Dialog displaying the results

Re-process the file(s) that have failed. This time, select only the file or files that failed and place a check mark in the *Process Selection Only* box (Figure 13-22). Select **File>Process...** to start the conversion on the individual file(s). Second time usually works fine.

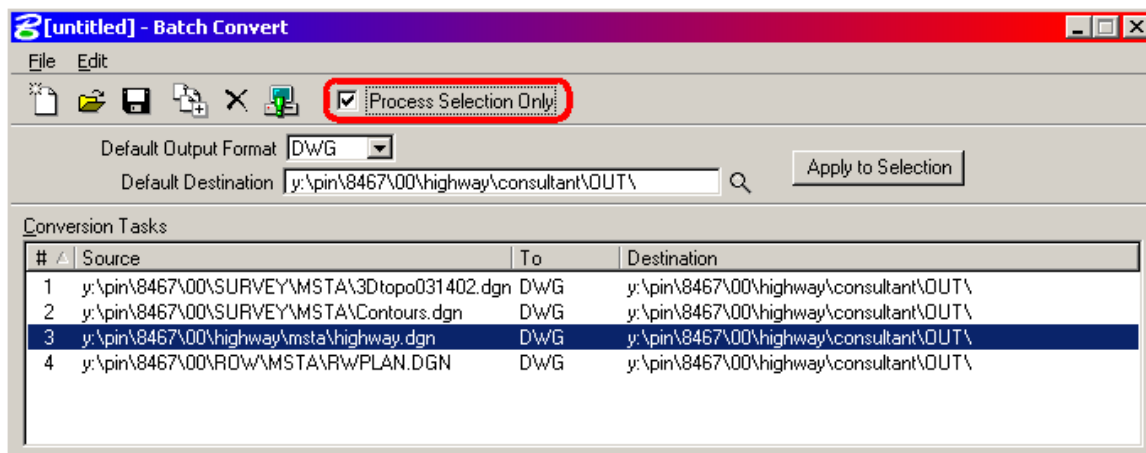


Figure 13-22: Selecting files and using the Process Selection Only box

When you have finished processing all of the files, close the dialog. It is not necessary to save the *Batch Convert* session.

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**Step Six: Zip and FTP the File**

MicroStation will create resource files that AutoCAD can use to display the same Fonts and Linetypes in their drawing. Open Windows Explorer and browse to your C:\temp folder and copy all of the .shx files to your *Workgroup's* Consultant\OUT folder.

In your *Workgroup's* consultant\OUT folder and Right Click and select **New>Compressed (zipped) Folder**. Rename it appropriately copy your .dwg and .shx files into it. Post it to the FTP site. Now that you have a record of what you sent in the Zip file, delete the single .dwg file and .shx files.